Author Index to Volume 58

References with (A) are to abstracts of papers presented at meetings of the American Physical Society. References with (L) are to Letters to the Editor and those with (T) designate title only.

Allison, Samuel K., Leonard C. Miller, Gilbert J. Perlow, Lester S. Skaggs and Nicholas M. Smith, Jr. Energy released in the reaction $Li^6(p,\alpha)He^3$ and the mass of He^3—178(L)

Altmann, George O., H. N. Walker and Victor F. Hess. Counter studies on cosmic rays at sea level—1011

Alvarez, Luis W. High energy carbon nuclei—192(A)

—— (see Wiens, Jacob)—1005(L)

—— **and R. Cornog.** Radioactive hydrogen—a correction—197(A)

—— **and Kenneth S. Pitzer.** Scattering of 20° neutrons in ortho- and parahydrogen—1003(L)

Amaki, Toshio and Asao Sugimoto. Some experiments on the relative cross sections of the (n,α) and (n,p) reactions produced by fast neutrons—659(L)

Anslow, Gladys A. (see Benson, Mary Anne)—1121(A)

Aoki, K. (see Okuda, T.)—578(L)

Arakawa, H. On the vertical shift of the meson-formation layer—1118(L)

Araki, G. (see Tomonaga, S.)—90(L)

Bacher, R. F. (see Tomboulian, D. H.)—52

Backus, John. Low energy β-rays from copper^{64}—192(A)

Baker, Richard F. Halation on kinescope screens—208(A)

Baltzer, O. J. (see Jauncey, G. E. M.)—1116(L)

Band, William (see Ma, C. Y.)—479(L)

Baños, Alfredo, Jr. (see Schremp, E. J.)—662

Bardeen, J. Concentration of isotopes by thermal diffusion: Rate of approach to equilibrium—94(L)

—— Image and Van der Waals forces at a metallic surface—727

Barkas, W. H. (see Creutz, E. C.)—481, 1008(L)

—— (see Delsasso, L. A.)—586

——, **Phillip R. Carlson, J. E. Henderson and William H. Moore.** Concentration of radioactive bromine produced by gamma-radiation—577(L)

——, **E. C. Creutz, L. A. Delsasso, R. B. Sutton and M. G. White.** Beta-radiation from Si^{27} and P^{30}—194(A), 383(L)

Barnes, Arthur H. and Clarence Zener. Internal friction at high temperatures—87(L)

Barnóthy, J. and M. Forró. Absorption of cosmic rays in lead at a depth of 1000 m water equivalent—844(L)

Baroody, E. M. Directional dependence of electrical conductivity—793

Barrett, Charles S. and Alfred H. Geisler. Atomic distribution in aluminum-silver alloys during aging—206(A)

Barschall, H. H. (see Wheeler, John A.)—682

—— **and M. H. Kanner.** On the angular distribution of fast neutrons scattered by hydrogen, deuterium and helium—590; erratum—1010(L)

Bartunek, P. F. (see Cork, J. M.)—580(L)

Bayley, D. S. (see Huntoon, R. D.)—97

Bearden, J. A. (see Munier, J. H.)—537

—— **and W. W. Beeman.** K-absorption edges and $K\beta_{2,5}$-emission lines of two Zn-Ni alloys—396

—— **and H. Friedman.** X-ray $K\beta_{2,5}$-emission lines and K-absorption limits of Cu-Zn alloys—387

Beeman, W. W. (see Bearden, J. A.)—396

—— (see Friedman, H.)—400

Beers, Yardley (see Ladenburg, Rudolf)—757(L)

Bell, K. G. (see Goodman, Clark)—1121(A)

Bell, Paul H. (see Davey, Wheeler P.)—207(A)

Bennett, Clarence E. Optical dispersion and molar refraction at zero frequency for compressed nitrogen, argon, and carbon dioxide measured as functions of density—263

Bennett, W. E. (see Bonner, T. W.)—185(L)

—— (see Rogers, M. M.)—186(L)

—— **and T. W. Bonner.** Gamma-ray resonances from the bombardment of carbon by deuterons—183(L)

——, **T. W. Bonner, Emmett Hudspeth and Bob E. Watt.** Protons from $C^{13}+H^2$—478(L)

Bennett, Willard H. Mobilities in hydrogen at high current densities—992

Benson, Mary Anne and Gladys A. Anslow. Resistivity study of the order-disorder transformation in Cd-Mg—1121(A)

Berkey, W. E. (see Slepian, Joseph)—204(A), 210(A)

Bernardini, G., B. N. Cacciapuoti, B. Ferretti, O. Piccioni and G. C. Wick. Genetic relation between the electronic and mesotronic component of cosmic rays near and above sea level—1017

Bessey, William H. Diffraction and reflection of molecular beams—207(A)

Beyer, H. G. (see Nix, F. C.)—1031

Bidwell, C. C. Thermal conductivity of metals—561

Birge, Raymond T. Values of e, e/m, h/e and α—658(L)

Bitter, F. (see Starr, C.)—977

Bleakney, Walker (see Cummings, Charles S., II)—787

Bloch, F. Theory of the resonance scattering of protons and neutrons on helium—829

Bøggild, J. K. (see Bohr, N.)—839

—— (see Brostrøm, K. J.)—651

Bohr, N. Scattering and stopping of fission fragments—654

—— Successive transformations in nuclear fission—864

——, **J. K. Bøggild, K. J. Brostrøm and T. Lauritsen.** Velocity-range relation for fission fragments—839

Bonner, T. W. (see Bennett, W. E.)—183(L), 478(L)

—— (see Rogers, M. M.)—186(L)

——, **Emmett Hudspeth, and W. E. Bennett.** Resonances in the emission of neutrons from the reaction $C^{12}+H^2$—185(L)

Booth, E. T., J. R. Dunning, A. V. Grosse and A. O. Nier. Neutron capture by uranium (238)—475(L)

Booth, H. S. Chemistry through the microscope—96(T)

Bostick, W. H. (see Herzog, G.)—278(L)

Bound, M. (see Rossi, B.)—761

Bowman, D. W. (see Green, J. B.)—381(L), 1094

Bozorth, R. M. (see Williams, H. J.)—203(A)

Author Index to Volume 58

References with (A) are to abstracts of papers presented at meetings of the American Physical Society. References with (L) are to Letters to the Editor and those with (T) designate title only.

Allison, Samuel K., Leonard C. Miller, Gilbert J. Perlow, Lester S. Skaggs and Nicholas M. Smith, Jr. Energy released in the reaction $Li^6(p,\alpha)He^3$ and the mass of He^3—178(L)

Altmann, George O., H. N. Walker and Victor F. Hess. Counter studies on cosmic rays at sea level—1011

Alvarez, Luis W. High energy carbon nuclei—192(A)

—— (see Wiens, Jacob)—1005(L)

—— **and R. Cornog.** Radioactive hydrogen—a correction—197(A)

—— **and Kenneth S. Pitzer.** Scattering of 20° neutrons in ortho- and parahydrogen—1003(L)

Amaki, Toshio and Asao Sugimoto. Some experiments on the relative cross sections of the (n,α) and (n,p) reactions produced by fast neutrons—659(L)

Anslow, Gladys A. (see Benson, Mary Anne)—1121(A)

Aoki, K. (see Okuda, T.)—578(L)

Arakawa, H. On the vertical shift of the meson-formation layer—1118(L)

Araki, G. (see Tomonaga, S.)—90(L)

Bacher, R. F. (see Tomboulian, D. H.)—52

Backus, John. Low energy β-rays from copper^{64}—192(A)

Baker, Richard F. Halation on kinescope screens—208(A)

Baltzer, O. J. (see Jauncey, G. E. M.)—1116(L)

Band, William (see Ma, C. Y.)—479(L)

Baños, Alfredo, Jr. (see Schremp, E. J.)—662

Bardeen, J. Concentration of isotopes by thermal diffusion: Rate of approach to equilibrium—94(L)

—— Image and Van der Waals forces at a metallic surface—727

Barkas, W. H. (see Creutz, E. C.)—481, 1008(L)

—— (see Delsasso, L. A.)—586

——, **Phillip R. Carlson, J. E. Henderson and William H. Moore.** Concentration of radioactive bromine produced by gamma-radiation—577(L)

——, **E. C. Creutz, L. A. Delsasso, R. B. Sutton and M. G. White.** Beta-radiation from Si^{27} and P^{30}—194(A), 383(L)

Barnes, Arthur H. and Clarence Zener. Internal friction at high temperatures—87(L)

Barnóthy, J. and M. Forró. Absorption of cosmic rays in lead at a depth of 1000 m water equivalent—844(L)

Baroody, E. M. Directional dependence of electrical conductivity—793

Barrett, Charles S. and Alfred H. Geisler. Atomic distribution in aluminum-silver alloys during aging—206(A)

Barschall, H. H. (see Wheeler, John A.)—682

—— **and M. H. Kanner.** On the angular distribution of fast neutrons scattered by hydrogen, deuterium and helium—590; erratum—1010(L)

Bartunek, P. F. (see Cork, J. M.)—580(L)

Bayley, D. S. (see Huntoon, R. D.)—97

Bearden, J. A. (see Munier, J. H.)—537

—— **and W. W. Beeman.** K-absorption edges and $K\beta_{2,5}$-emission lines of two Zn-Ni alloys—396

—— **and H. Friedman.** X-ray $K\beta_{2,5}$-emission lines and K-absorption limits of Cu-Zn alloys—387

Beeman, W. W. (see Bearden, J. A.)—396

—— (see Friedman, H.)—400

Beers, Yardley (see Ladenburg, Rudolf)—757(L)

Bell, K. G. (see Goodman, Clark)—1121(A)

Bell, Paul H. (see Davey, Wheeler P.)—207(A)

Bennett, Clarence E. Optical dispersion and molar refraction at zero frequency for compressed nitrogen, argon, and carbon dioxide measured as functions of density—263

Bennett, W. E. (see Bonner, T. W.)—185(L)

—— (see Rogers, M. M.)—186(L)

—— **and T. W. Bonner.** Gamma-ray resonances from the bombardment of carbon by deuterons—183(L)

——, **T. W. Bonner, Emmett Hudspeth and Bob E. Watt.** Protons from $C^{13}+H^2$—478(L)

Bennett, Willard H. Mobilities in hydrogen at high current densities—992

Benson, Mary Anne and Gladys A. Anslow. Resistivity study of the order-disorder transformation in Cd-Mg—1121(A)

Berkey, W. E. (see Slepian, Joseph)—204(A), 210(A)

Bernardini, G., B. N. Cacciapuoti, B. Ferretti, O. Piccioni and G. C. Wick. Genetic relation between the electronic and mesotronic component of cosmic rays near and above sea level—1017

Bessey, William H. Diffraction and reflection of molecular beams—207(A)

Beyer, H. G. (see Nix, F. C.)—1031

Bidwell, C. C. Thermal conductivity of metals—561

Birge, Raymond T. Values of e, e/m, h/e and α—658(L)

Bitter, F. (see Starr, C.)—977

Bleakney, Walker (see Cummings, Charles S., II)—787

Bloch, F. Theory of the resonance scattering of protons and neutrons on helium—829

Bøggild, J. K. (see Bohr, N.)—839

—— (see Brostrøm, K. J.)—651

Bohr, N. Scattering and stopping of fission fragments—654

—— Successive transformations in nuclear fission—864

——, **J. K. Bøggild, K. J. Brostrøm and T. Lauritsen.** Velocity-range relation for fission fragments—839

Bonner, T. W. (see Bennett, W. E.)—183(L), 478(L)

—— (see Rogers, M. M.)—186(L)

——, **Emmett Hudspeth, and W. E. Bennett.** Resonances in the emission of neutrons from the reaction $C^{12}+H^2$—185(L)

Booth, E. T., J. R. Dunning, A. V. Grosse and A. O. Nier. Neutron capture by uranium (238)—475(L)

Booth, H. S. Chemistry through the microscope—96(T)

Bostick, W. H. (see Herzog, G.)—278(L)

Bound, M. (see Rossi, B.)—761

Bowman, D. W. (see Green, J. B.)—381(L), 1094

Bozorth, R. M. (see Williams, H. J.)—203(A)

—— **and H. J. Williams.** Explanation of anomalous magnetic torque curves—210(A)
——, **H. J. Williams and R. J. Morris, Jr.** Magnetic properties of iron-aluminum alloys—203(A)
Brady, James J. and Bruce Elle. Electrical conductivity of tartaric acid crystals—195(A)
Brasefield, Charles J. Effect of an activator on the absorption spectrum of zinc sulphide powders—436
Breit, G. Interpretation of resonances in nuclear reactions—506
—— Scattering matrix of radioactive states—1068
Bridgman, P. W. Second law of thermodynamics and irreversible processes—845(L)
Bright, William C. (see Murphy, Edgar J.)—88(L)
Brooks, Harvey. Ferromagnetic anisotropy and the itinerant electron model—909
Brostrøm, K. J. (see Bohr, N.)—839
——, **J. K. Bøggild and T. Lauritsen.** Cloud-chamber studies of fission fragment tracks—651
Brown, Harrison. On the temperature assignments of experimental thermal diffusion coefficients—661(L)
Brown, Sanborn C. Atmospheric pressure Geiger-Müller counters—1121(A)
Brown, William Fuller, Jr. Interpretation of torsional frequencies of crystal specimens—998
—— Theory of the approach to magnetic saturation—202(A), 736
Cacciapuoti, B. N. (see Bernardini, G.)—1017
Calus, H. and R. Smoluchowski. On the heat emission associated with the processes in oversaturated solid solutions ("aging")—205(A)
Carlson, Phillip R. (see Barkas, Walter H.)—577(L)
—— **and J. E. Henderson.** Photonuclear disintegration of iron and manganese—193(A)
Chao, K. T. (see Oleson, N. L.)—201(A)
—— (see Randels, R. B.)—201(A)
Chase, C. T. and R. T. Cox. Scattering of 50-kilovolt electrons by aluminum—243
Ch'en Shang-Yi. Broadening, asymmetry and shift of rubidium resonance lines under different pressures of helium and argon up to 100 atmospheres—1051
—— Pressure effect of homogeneous rubidium vapor on its resonance lines—884
—— **and Pao Chia-Shan.** Pressure effects of hydrogen and nitrogen on the second doublet of Rb principal series—1058
Christensen, H. (see Williams, H. J.)—203(A)
Christy, R. F. and J. M. Keller. Precise determination of the fine structure constant—658(L)
—— **and S. Kusaka.** Interaction of mesotrons with γ-rays—191(A)
Clancy, Edward P. Induced radioactivity of krypton—88(L)
Clarke, E. T. (see Murphy, Edgar J.)—88(L)
—— **and S. A. Korff.** Latitude effect in cosmic rays at far southern latitudes—179(L), 201(A)
Cleveland, Forrest F. Raman spectra evidence for the disappearance of the cyanate ion from an aqueous solution of potassium cyanate—189(A)
Cohn, Willi M. Note on the polarization of light emitted by electrically exploded wires—50, 188(A)
Collins, George B. (see Feldmeier, J. R.)—200(A)
Colwell, R. C. Variation in intensity of radio signals—204(A)
—— (see Thomas, C. D.)—203(A)
Compton, Arthur H. Effect of an eclipse on cosmic rays—841(L)
Condon, E. U. Development of high voltage for the production of neutrons and artificial radioactivity—96(T)
—— Simple calculation of klystron efficiency—204(A)
Cook, Emery. Complete data and boundary conditions for a superconductor—361
—— Phenomenological theory of superconductors—357
Cooley, R. A. (see Kalbfell, D. C.)—91(L)
Coon, J. B. Vibration analysis of the chlorine dioxide absoprtion spectrum—926(L)
Cooper, Densil. Fine structure in the directional intensity of cosmic rays—288
Cooper, E. P. and E. C. Nelson. Ground states of Be^{10} and C^{10}—1117(L)
Copeland, Paul L. Secondary emission from films of platinum on aluminum—604
Corben, H. C. and Julian Schwinger. Electromagnetic properties of mesotrons—191(A), 953
Cork, J. M. (see Lawson, J. L.)—580(L)
—— **and P. F. Bartunek.** Photographic registration of heavy particles emitted during bombardment—580(L)
—— **and J. Halpern.** Radioactive isotopes of gold—201(A)
—— **and W. Middleton.** Simultaneous emission of three particles from an excited nucleus—474(L)
Cornog, R. (see Alvarez, Luis W.)—197(A)
Corson, D. R., K. R. MacKenzie and E. Segrè. Artificially radioactive element 85—672
Cox, C. R. (see Hoag, J. Barton)—203(A)
Cox, R. T. (see Chase, C. T.)—243
Coy, Nettie H. and H. Sponer. Emission spectrum of antimony nitride—709
Crane, H. R. (see Oleson, N. L.)—201(A)
—— (see Randels, R. B.)—201(A)
Creutz, E. C. (see Barkas, W. H.)—194(A), 383(L)
—— (see Delsasso, L. A.)—586
——, **W. H. Barkas and N. H. Furman.** Gamma-radiation from rhenium—1008(L)
——, **L. A. Delsasso, R. B. Sutton, M. G. White and W. H. Barkas.** Radioactivity produced by proton bombardment of bromine and iodine—481
Critchfield, C. L. and W. E. Lamb, Jr. Note on a field theory of nuclear forces—46
Cummings, Charles S., II and Walker Bleakney. Products of ionization by electron impact in methyl and ethyl alcohol—787
Dancoff, S. M. Spin-orbit coupling in He^5—190(A), 326
Darrin, Marc (see Sidhu, S. S.)—206(A)
Darrow, K. K. Phrasing of the principle of indefiniteness—1120(T)
Davenport, L. L. Attempt to measure Young's modulus and Poisson's ratio by x-ray methods—206(A)
Davey, Wheeler P. and Paul H. Bell. X-ray study of liquid benzene, cyclohexane, and their mixtures—207(A)

Davidson, W. L., Jr. (see Schultz, H. L., Jr.)—198(A), 1043
Delsasso, L. A. (see Barkas, W. H.)—194(A), 383(L)
—— (see Creutz, E. C.)—481
——, **M. G. White, W. Barkas and E. C. Creutz.** Carbon isotopes of mass ten and eleven—586
DeVault, Don and W. F. Libby. Decay of the 4.5-hour Br^{80} isomer—688
Dickson, G. R. and E. J. Konopinski. Note on a possible scheme for the assignment and prediction of radioactive periods—949
Distad, M. (see Hagen, John P.)—208(A)
Drynski, T. and R. Smoluchowski. X-ray absorption edges in gaseous, liquid and solid states—207(A)
DuBridge, L. A. (see LePage, Wilbur R.)—61
—— **and John Marshall.** Radioactive isotopes of Sr, Y and Zr—7
DuMond, Jesse W. M. Complete isometric consistency chart for the natural constants e, m and h—457
Dunning, J. R. (see Booth, E. T.)—475(L)
—— (see Nix, F. C.)—1031
Eckart, Carl. Thermodynamics of irreversible processes. I. Simple fluid—267; II. Fluid mixtures—269; Correction—924; III. Relativistic theory of the simple fluid—919
Eisenstein, A. and N. S. Gingrich. Diffraction of x-rays by liquid argon—307
Elle, Bruce (see Brady, James J.)—195(A)
Ellett, A. (see Huntoon, R. D.)—97
—— (see McLean, W. B.)—500
—— (see Young, Victor J.)—498
Elliott, D. R. (see King, L. D. P.)—846(L)
Ellwood, W. B. Magnetic ultra-micrometer for measurement of thin films or nonmagnetic material superimposed upon a base of magnetic material—204(A)
Elmore, W. C. Interpretation of ferromagnetic colloid patterns on ferromagnetic crystal surfaces—640
Engstrom, R. W. and W. S. Huxford. Time-lag analysis of the Townsend discharge in argon with activated caesium electrodes—67
Evinger, H. H. (see Muskat, M.)—205(A)
Fajans, Kasimir and William H. Sullivan. Induced radioactivity of rhenium and tungsten—276(L)
—— **and Adolf F. Voigt.** Radioactivity produced by bombarding thallium—177(L)
Fano, Ugo. Theory on cathode luminescence—544
Farnsworth, H. E. and Ralph P. Winch. Photoelectric work functions of (100) and (111) faces of silver single crystals and their contact potential difference—812
Feldmeier, J. R. and George B. Collins. Pair production by electrons—200(A)
Ferguson, A. J. and L. R. Walker. Scattering of alpha-particles by carbon and oxygen—666
Ferretti, B. (see Bernardini, G.)—1017
Field, J. E. X-ray study of the proportion of crystalline and amorphous components in stretched rubber—1120(T)
Fitzsimmons, K. S., L. B. Loeb and J. M. Meek. Positive corona discharge—187(A)
Fleming, G. M. and Joseph E. Henderson. Energy losses attending field current and thermionic emission of electrons from metals—887
—— **and D. M. Holtoner.** Observations on field currents from tantalum—189(A)
Flerov and Petrjak. Spontaneous fission of uranium—89(L)
Fletcher, Harvey. Sound patterns—96(T)
Foote, Frank and Eric R. Jette. Fundamental relation between lattice constants and density—81
Forró, M. (see Barnóthy, J.)—844(L)
Fouts, O. R. Dielectric constant and power factor of Koroseal at radiofrequencies—1120(T)
Fowler, W. A. (see Lauritsen, C. C.)—193(A)
—— (see Streib, J. F.)—191(A)
—— **and C. C. Lauritsen.** Gamma-radiation from $M^{15}+H^1$—192(A)
Frank, Philipp. Does philosophy help us understand physics?—1120(T)
Friedman, H. (see Bearden, J. A.)—387
—— **and W. W. Beeman.** Copper and nickel x-ray $K\beta_2$- and $K\beta_3$-emission lines and K-absorption limits in Cu-Ni alloys—400
Frye, William E. (see Hoyt, Frank C.)—784
Furman, N. H. (see Creutz, E. C.)—1008(L)
Gamow, G. and M. Schoenberg. Possible role of neutrinos in stellar evolution—1117(L)
Garbuny, Max and L. H. Matthias. Initial reignition voltage measurements—182(L)
Gast, Paul F. (see Loughridge, D. H.)—194(A), 583
—— **and D. H. Loughridge.** Latitude effect of cosmic rays above 50 degrees N latitude—194(A)
Geisler, Alfred H. (see Barrett, Charles S.)—206(A)
Gemant, Andrew. Ionic mobilities in insulating liquids—904
George, Henry H. (see Letner, Harold R.)—206(A)
Gerjuoy, E. On the angular distribution in the reaction $F^{19}(p,\alpha)$—503
Gingrich, N. S. (see Eisenstein, A.)—307
Glasoe, G. N. and J. Steigman. Radioactive products from gases produced in uranium fission—1
Goldhaber, M. (see O'Neal, R. D.)—574
Goldmark, Peter C. Color television—1121(T)
Goldsmith, H. H. (see Hornbostel, J.)—18
Good, William E. and Gertrud Scharff-Goldhaber. Scattering cross section of protons for 900-Kev neutrons—89(L)
Goodman, Clark, K. G. Bell and W. L. Whitehead. Radioactivity of sedimentary rocks and associated petroleum—1121(A)
Goss, W. H. and J. E. Henderson. High yield canal-ray ion source for nuclear disintegration—192(A)
Goudsmit, S. and J. L. Saunderson. Multiple scattering of electrons. II—36
Green, C. B. and G. L. Pearson. Thermistor voltage regulator—204(A)
Green, J. B., D. W. Bowman and E. H. Hurlburt. Zeeman effect of krypton—1094
——, **D. W. Bowman and E. H. Hurlburt.** Zeeman effect in krypton and xenon—381(L)
Gregg, E. C., Jr. Ultrasonic absorption in liquids—208(A)
Grinberg, A. P. and L. I. Roussinow. Structure of the lower excited levels of the Br^{80} nucleus—181(L)

Groetzinger, Gerhart (see Schein, Marcel)—1027
Grosse, A. V. (see Booth, E. T.)—475(L)
Hagen, John P., M. Distad and F. C. Iseley. Transmission line method of measuring the dielectric constant of gases and water vapor at ultra-high frequencies—208(A)
Hahn, Stuart H. Thermal problems in rubber manufacture—1120(T)
Halliday, E. C. (see Pierce, J. A.)—1119(L)
Halpern, J. (see Cork, J. M.)—201(A)
Hamilton, Donald R. On directional correlation of successive quanta—122
Hansche, George E. Intensity changes in Cameron bands of CO excited by electron impact—1075
Harrison, G. R. (see Roberson, J. H.)—895
—— **and J. Rand McNally, Jr.** Zeeman effects in the arc spectrum of ruthenium—703
Hartman, C. D. (see Wooldridge, D. E.)—381(L)
Harvey, G. G. (see Jauncey, G. E. M.)—179(L)
Haseltine, William R. Sparking threshold in air—188(A)
Haxby, R. O. (see Wells, W. H.)—162
——, **W. E. Shoupp, W. E. Stephens and W. H. Wells.** Fast neutron threshold for uranium fission—199(A)
——, **W. E. Shoupp, W. E. Stephens and W. H. Wells.** Photo-fission of uranium and thorium—92(L)
——, **W. E. Shoupp, W. E. Stephens and W. H. Wells.** Thresholds for the proton-neutron reactions of lithium, beryllium, boron and carbon—1035
Hay, Robert H. Nuclear magnetic moment of C^{13}—180(L)
Hazen, Wayne E. Sensitive time of a Wilson cloud chamber—194(A)
Healea, Monica and Charlotte Houtermans. Relative secondary electron emission due to He, Ne and A ions bombarding a hot nickel target—608
Hebb, M. H. and Eldred Nelson. Internal conversion of gamma-radiation in the *L* shell—486
Hellund, E. J. Temperature dependence of the viscosity of helium—192(A)
—— Transport cross section of helium—278(L)
Hemmendinger, Arthur. Proton induced radioactivity of manganese—929
Henderson, J. E. (see Barkas, Walter H.)—577(L)
—— (see Carlson, P. R.)—193(A)
—— (see Fleming, G. M.)—887
—— (see Goss, W. H.)—192(A)
—— (see Rubens, Sidney M.)—446
—— (see Wyckoff, H. O.)—187(A)
Henderson, Malcolm C. Heat of fission of uranium—200(A), 774
Herb, R. G., C. M. Turner, C. M. Hudson and R. E. Warren. Electrostatic generator with concentric electrodes—579(L)
Herring, Conyers, and A. G. Hill. Theoretical constitution of metallic beryllium—132
Herzfeld, K. F. (see Lyddane, R. H.)—1008(L)
Herzog, G. and W. H. Bostick. Pair production of mesotrons at 29,000 feet—278(L)
Hess, Victor F. (see Altmann, George O.)—1011
Hicks, Bruce L. Pressure-temperature dependence of the compressibility factor and density of hydrocarbons—209(A)
Higgs, A. J. (see Pierce, J. A.)—1119(L)
Hill, A. G. (see Herring, Conyers)—132
Hillier, James. Fresnel diffraction of electrons as a contour phenomenon in electron supermicroscope images—842(L)
Hirsh, F. R., Jr. Note on thin quartz crystals as used in the Cauchois focusing x-ray spectrograph—78
Hoag, J. Barton and C. R. Cox. High frequency resistance and permeability of iron in a magnetic field—203(A)
Holland, D. O. (see Stewart, G. W.)—174
Holloway, M. G. and B. L. Moore. Disintegration of N^{14} and N^{15} by deuterons—847
Holstein, T. and H. Primakoff. Field dependence of the intrinsic domain magnetization of a ferromagnet—1098
Holtoner, D. M. (see Fleming, G. M.)—189(A)
Hornbostel, J., H. H. Goldsmith and J. H. Manley. On the resonance levels of rhodium and indium—18
Houtermans, Charlotte (see Healea, Monica)—608
Hoyt, Frank C. and William E. Frye. On the calculation of force fields from scattering—784
Hsü Chang Pen. Propagation of electromagnetic waves inside a cylindrical metal tube and along other types of guides—193(A)
Hudson, C. M. (see Herb, R. G.)—579(L)
Hudson, G. G. (see Loeb, L. B.)—195(A)
Hudspeth, Emmett (see Bennett, W. E.)—478(L)
—— (see Bonner, T. W.)—185(L)
—— (see Richards, Hugh T.)—382(L)
—— (see Rogers, M. M.)—186(L)
Huntington, H. B. Self-consistent solution to the vacancy problem in metals—209(A)
Huntoon, R. D., A. Ellett, D. S. Bayley and J. A. Van Allen. Distribution in angle of protons from the deuteron-deuteron reaction—97
Hurlburt, E. H. (see Green, J. B.)—381(L), 1094
Hurwitz, H., Jr. Note on interaction energies in radiation theory—467
Hustrulid, Andrew (see Mann, Marvin M.)—340
Huxford, W. S. (see Engstrom, R. W.)—67
Ikawa, M. (see Nishina, Y.)—660(L)
Inglis, D. R. Nuclear spin of C^{13}—577(L)
Iseley, F. C. (see Hagen, John P.)—208(A)
Iverson, V. E. (see Kelly, Harry C.)—189(A)
Jacobs, James A. (see McLean, W. B.)—500
Jacobsen, I. C. and N. O. Lassen. Deuteron induced fission in uranium and thorium—867
Jaffé, George. On the theory of recombination—968
Jaffe, Hans von R. On the color of solutions of alkali metals in ammonia—207(A)
Jánossy, L. (see Rossi, B.)—761
Jauncey, G. E. M. and O. J. Baltzer. Modified reflections of Cu $K\alpha$ x-rays from rocksalt—1116(L)
—— **and G. G. Harvey.** Theory of the diffuse scattering of x-rays from crystals—179(L)
Jesse, William P. Study of time-variations in cosmic-ray intensity at high altitudes—281
Jette, Eric R. (see Foote, Frank)—81
Jones, R. Clark. On the theory of the thermal diffusion coefficient for isotopes—111
Jordan, E. B. $C^{13}H_2-N^{14}$ mass difference—1009(L)

Kalbfell, D. C. and R. A. Cooley. Radio-isotopes of Ba and Cs—91(L)
Kamen, Martin D. and Samuel Ruben. Production and properties of carbon (14)—194(A)
Kamogawa, Hirosi. Secondary emission and electron diffraction on the glass surface—660(L)
Kanne, W. R., R. F. Taschek and G. L. Ragan. Search for resonance scattered protons from B^{11} and F^{19}—693
Kanner, M. H. (see Barschall, H. H.)—590; erratum—1010(L)
Kaplan, Joseph (see Rubens, Sidney)—188(A)
—— **and Sidney M. Rubens.** Temporal effects in nitrogen afterglows—188(A)
Kaufmann, A. R. (see Starr, C.)—657(L), 977
Keller, J. M. (see Christy, R. F.)—658(L)
Kelly, Harry C. and V. E. Iverson. Fluorescence method of identifying potato tubers free from bacterial ring rot and other types of decay—189(A)
Kelsall, G. A. (see Nesbitt, E. A.)—203(A)
Kerst, D. W. Acceleration of electrons by magnetic induction—841(L)
Kettering, Charles F. Industry and science—96(T)
Keyes, Kenneth E. Electron band treatment of susceptibilities of nickel and nickel alloys—202(A)
Kimura, K. (see Nishina, Y.)—660(L)
King, L. D. P. and D. R. Elliott. Short-lived radioactivities of $_{14}Si^{27}$, $_{16}S^{31}$, and $_{18}A^{35}$—846(L)
King, Robert B. (see Russell, Henry Norris)—407
—— **and D. C. Stockbarger.** Absolute f values of Cd I and Cu I lines—187(A)
Kip, A. F. (see Loeb, L. B.)—195(A)
Koenig, Henry Paul. Solid angle subtended by the main and shadow cones of cosmic radiation—385
Konopinski, E. J. (see Dickson, G. R.)—949
Korff, S. A. (see Clarke, E. T.)—179(L), 201(A)
—— (see Murphy, Edgar J.)—88(L)
Krasny-Ergen, William. Optimal dimensions of a Clusius-Dickel isotope separator—1078
Kuper, J. B. Horner and Edward Teller. Scattering of fast electrons in helium—602
Kusaka, S. (see Christy, R. F.)—191(A)
Kusch, P. (see Millman, S.)—438
—— (see Shrader, E. F.)—925(L)
Ladenburg, Rudolf and Yardley Beers. Direct determination of the charge of the beta-particle—757(L)
Lamb, Willis E., Jr. Passage of uranium fission fragments through matter—696
—— (see Critchfield, C. L.)—46
Lampe, Isadore. Comparative study of neutron- and x-radiation upon biological tissues in the cancer problem—96(T)
Landé, Alfred. Ratio of e, c, and h—843(L)
Landau, L. On the "radius" of the elementary particles—1006(L)
—— **and I. Tamm.** On the nature of the nuclear forces—1006(L)
Langer, Alois and W. E. Stephens. Radioactive barium and strontium from photofission of uranium—759(L)
Lapointe, Christian and Franco Rasetti. Capture cross sections for thermal energy neutrons—554
Laporte, Otto and J. E. Mack. On the structure of the arc spectrum of tungsten—188(A)
Lark-Horovitz, K. (see Miller, E. P.)—207(A)
Lassen, N. O. (see Jacobsen, I. C.)—867
Lauritsen, C. C. (see Fowler, W. A.)—192(A)
—— (see Streib, W. A.)—191(A)
—— **and W. A. Fowler.** Gamma-radiation from $C^{13}+H^1$—193(A)
Lauritsen, T. (see Bohr, N.)—839
—— (see Brostrøm, K. J.)—651
Lawson, J. L. and J. M. Cork. Internally converted gamma-rays from radioactive gold—580(L)
Leatherberry, Daniel (see Thaxton, Hubert M.)—200(A)
LePage, Wilbur R. and L. A. DuBridge. Electron emission into dielectric liquids—61
Letner, Harold R., Henry H. George and S. S. Sidhu. X-ray diffraction studies of silver-rich, silver-magnesium alloys—206(A)
Libby, W. F. (see DeVault, Don)—688
Liebermann, Leonard N. Rotational analysis of some CS_2 bands in the near ultraviolet system—183(L)
Lindsay, R. B. What do we mean by an explanation in physics?—1120(T)
Little, E. M. Relativity misconceptions such as relative velocity—191(A)
Livingston, R. S. and B. T. Wright. $(d,2n)$ reaction in copper—656(L)
Loeb, L. B. (see Fitzsimmons, K. S.)—187(A)
——, **G. G. Hudson and A. F. Kip.** Occurrence of Trichell pulses in negative point-to-plane corona in air—195(A)
Longacre, A. Secondary school and physics in general education—1120(T)
Loughridge, D. H. (see Gast, Paul F.)—194(A)
—— **and Paul F. Gast.** Further investigations of air mass effect on cosmic-ray intensity—194(A), 583
Lu, Hoff and Ralph H. Schuman. Longitudinal extraction of ions from low pressure constricted arc discharge in H_2 and in BF_3—199(A)
Ludloff, H. F. Elasticity of solids at different temperatures, especially near phase transitions—209(A)
Lyddane, R. H., K. F. Herzfeld and R. G. Sachs. Electric fields in vibrating polar crystals—1008(L)
Ma, C. Y. and William Band. Law of magnus in single-crystal aluminum wires—479(L)
Mack, Edward. Protein molecule structure—96(T)
Mack, J. E. (see Laporte, Otto)—188(A)
—— (see Roberson, J. H.)—895
MacKenzie, K. R. (see Corson, D. R.)—672
Manley, J. H. (see Hornbostel, J.)—18
Mann, Marvin M., Andrew Hustrulid and John T. Tate. Ionization and dissociation of water vapor and ammonia by electron impact—340
Margenau, H. and E. Wigner. Magnetic moments of odd nuclei—103
Mark, H. Some applications of the kinetic theory of rubber elasticity—1120(T)
Marshall, Fitz-Hugh. Method for obtaining powders of uniform sodium chloride crystals in various size ranges, and the effect of size upon the intensity of x-ray reflection—642

Marshall, John (see DuBridge, L. A.)—7
Marshall, Lauriston C. (see Sloan, David H.)—193(A)
Marton, L. New electron microscope—57
Mason, R. C. Short time photographs of a low pressure copper arc—204(A)
Mason, W. P. Location of hysteresis phenomena in Rochelle salt crystals—744
Matthias, L. H. (see Garbuny, Max)—182(L)
McLean, W. B., A. Ellett and James A. Jacobs. Distribution in angle of the long range alpha-particles from fluorine bombarded with protons—500
McMillan, Edwin. Seven-day uranium activity—178(L)
McNally, J. Rand, Jr. (see Harrison, George R.)—703
Meek, J. M. Theoretical calculations of breakdown potential for sphere-gaps—195(A)
—— Variation of sparking potential with dense initial photoelectric currents—196(A)
—— (see Fitzsimmons, K. S.)—187(A)
Middleton, W. (see Cork, J. M.)—474(L)
Miller, Bernard L. Electron and x-ray diffraction study of the grain boundary substance in cadmium—206(A)
Miller, Bertrand J. Effect of hyperfine structure upon the magnetic rotation of the plane of maximum polarization of resonance radiation—258
Miller, Carl W. Photography in the physics curriculum—1120(T)
Miller, E. P. and K. Lark-Horovitz. Structure of liquid argon—207(A)
Miller, Leonard C. Electrostatic deflection studies of alpha-particles; the alphas from $Li^6(p, \alpha)He^3$—936
—— (see Allison, S. K.)—178(L)
Millman, S. (see Shrader, E. F.)—925(L)
—— **and P. Kusch.** On the radiofrequency spectra of sodium, rubidium and caesium—438
Møller, C. On the theory of mesons—1118(L)
Mooney, Robert Lee. Elastic scattering in helium at 15°C—871
Moore, B. L. (see Holloway, M. G.)—847
Moore, Charlotte E. (see Russell, Henry Norris)—407
Moore, William H. (see Barkas, Walter H.)—577(L)
Morgan, F., M. Muskat and D. W. Reed. Experiments on boundary lubrication—205(A)
Morris, R. J., Jr. (see R. M. Bozorth)—203(A)
Morrison, P. and L. I. Schiff. Radiative K capture—24, 190(A)
Morrison, R. A. and H. M. Parker. Some anomalies in the photographic recording of gamma-radiation—196(A)
Motz, Lloyd and Julian Schwinger. Scattering of thermal neutrons by deuterons—26
Mouromtseff, I. E. Influence of "cold ends" on performance of vacuum-tube air coolers—204(A)
Mouzon, J. C. (see Park, R. D.)—43
Mrozowski, S. Forbidden lines in the spectrum of Pb I—189(A)
—— Hyperfine structure and intensities of the forbidden lines of Pb I—1086
—— Nuclear isotope shift in the spectra of HgH^+ and HgD^+—332
—— Nuclear isotope shift in the spectrum of ZnH—597
Mueller, Hans. Properties of Rochelle salt. III—565, IV—805
Munier, J. H., J. A. Bearden and C. H. Shaw. Principal M-series emission lines of tungsten and the K absorption of magnesium and aluminum—537
Murphy, Edgar J., William C. Bright, Martin D. Whitaker, S. A. Korff and E. T. Clarke. Comparative efficiencies of radioactive neutron sources—88(L)
Muskat, M. (see Morgan, F.)—205(A)
—— **and H. H. Evinger.** Effect of pressure variation of viscosity on the lubrication of plane sliders—205(A)
Neher, H. Victor and William H. Pickering. Attempt to measure the latitude effect of extensive cosmic-ray showers—665
—— **and H. G. Stever.** Mean lifetime of the mesotron from electroscope data—191(A), 766
Neil, R. H. (see Warner, A. H.)—195(A)
Nelson, E. C. (see Cooper, E. P.)—1117(L)
Nelson, Eldred. Note on the Neher-Stever experiment—771
—— (see Hebb, M. H.)—486
Nesbitt, E. A. and G. A. Kelsall. Vicalloy, a new permanent magnet material—203(A)
Newman, M. S. Cancer-producing hydrocarbons—96(T)
Nielsen, H. H. (see Straley, J. W.)—1002(L)
Nielsen, R. A. Precipitation of dirt—205(A)
Nier, A. O. (see Booth, E. T.)—475(L)
Nishina, Y., T. Yasaki, K. Kimura and M. Ikawa. Fission products of uranium by fast neutrons—660(L)
Nix, F. C., H. G. Beyer and J. R. Dunning. Neutron studies of order in Fe-Ni alloys—1031
Nordsieck, A. On the value of the electric quadrupole moment of the deuteron—310
Norling, Folke. On the efficiency of γ-ray counters—277(L)
Northrup, D. L., C. M. Van Atta, R. J. Van de Graaff and L. C. Van Atta. Some experiments on the irradiation of deuterium, beryllium, and indium nuclei by x-rays—199(A)
Nottingham, W. B. Remarks on the temperature dependence of the work function of tungsten—927(L)
O'Connor, John (see Rudnick, Philip)—1003(L)
Ogata, K. (see Okuda, T.)—578(L)
Okuda, T., K. Ogata, K. Aoki and Y. Sugawara. On the isotopic weights of chlorine, argon and iron by the doublet method—578(L)
Oldenberg, O., E. G. Schneider and H. S. Sommers, Jr. Spectra of the thermal reaction between hydrogen and oxygen—1121(A)
Oleson, N. L., K. T. Chao and H. R. Crane. Effect of crystalline structure on the multiple scattering of electrons—201(A)
O'Neal, R. D. and M. Goldhaber. Decay constant of H^3—574
Ott, L. H. (see Schultz, H. L.)—198(A), 1043
Pao Chia-Shan (see Ch'en Shang-Yi)—1058
Park, R. D. and J. C. Mouzon. Evidence against the existence of an excited state of He^3—43
Parker, H. M. General purpose dosimeter—196(A)
—— (see R. A. Morrison)—196(A)

Parker, W. L. and L. W. Phillips. Spectra of highly ionized argon—93(L)
Pauli, W. Connection between spin and statistics—716
Pearson, G. L. (see Green, C. B.)—204(A)
Pecher, Charles. Long-lived isotope of yttrium—843(L)
Perlow, Gilbert J. Accurate measurement of the energy released in the disintegration of Li^6 by protons—218
—— (see Allison, S. K.)—178(L)
Petrjak, (see Flerov)—89(L)
Phillips, L. W. (see Parker, W. L.)—93(L)
Piccioni, O. (see Bernardini, G.)—1017
Pickering, William H. (see Neher, H. Victor)—665
Pierce, J. A., A. J. Higgs and E. C. Halliday. Decrease in ionization of the F_2 region during solar eclipse—1119(L)
Pincherle, Leo. Partially inverted multiplets in Mg I—251
Pitzer, Kenneth S. (see Alvarez, Luis W.)—1003(L)
Plain, G. J. (see Young, Victor J.)—498
Pollard, Ernest (see Shrader, E. F.)—199(A)
—— **and William W. Watson.** Transmutation of the separated isotopes of neon by deuterons—12
Potter, James G. Reply to remarks on the temperature dependence of the work function of tungsten—928(L)
—— Temperature dependence of the work function of tungsten from measurement of contact potentials by the Kelvin method—623
Powell, Wilson M. Photon production of mesotrons—474(L)
Primakoff, H. (see Holstein, T.)—1098
Privette, William (see Thaxton, Hubert M.)—200(A)
Ragan, G. L. (see Kanne, W. R.)—693
Ramsey, N. F., Jr. Diamagnetism and the quadrupole moment of hydrogen molecules—190(A)
—— Rotational magnetic moments of H_2, D_2, and HD molecules. Rotational radiofrequency spectra of H_2, D_2, and HD in magnetic fields—226
Ramsey, W. E. Period of photon emission in a counter discharge—476(L)
—— (see Swann, W. F. G.)—477(L)
Randall, R. H. and Clarence Zener. Internal friction of aluminum—472
Randels, R. B., K. T. Chao and H. R. Crane. Single scattering of electrons—201(A)
Rasetti, Franco. Capture cross sections for thermal energy neutrons. II—869
—— Scattering of thermal neutrons by crystals—321
—— (see Lapointe, Christian)—554
Read, Thomas A. Internal friction of single metal crystals—371
Reed, D. W. (see Morgan, F.)—205(A)
Regener, Victor H. (see Rossi, Bruno)—837
Reynolds, L. M. (see Stewart, G. W.)—174
Richards, Hugh T. and Emmett Hudspeth. Photographic plate spectrum of $d-d$ neutrons—382(L)
Rinehart, John S. Temperature dependence of Young's modulus of beta-brass single crystals—365
Ringo, Roy. Velocity spectrum of α-particles—942
Roberson, J. H., J. E. Mack and G. R. Harrison. Interactions in the tungsten atom, W I, in a magnetic field—895
Rochester, G. D. (see Rossi, B.)—761
Rogers, Eric. Model showing variable astigmatism—1121(T)
Rogers, M. M., W. E. Bennett, T. W. Bonner, and Emmett Hudspeth. Resonances in the emission of protons from the reaction $C^{13}+H^2$—186(L)
Rojansky, V. Cosmic rays and comets—1010(L)
Rose, M. E. Electron path lengths in multiple scattering—90(L)
Rossi, Bruno and Victor H. Regener. Production of mesotrons by penetrating non-ionizing rays—837
—— **L. Jánossy, G. D. Rochester and M. Bound.** On the production of secondary ionizing particles by non-ionizing agents in cosmic radiation—761
Roussinow, L. I. (see Grinberg, A. P.)—181(L)
Ruben, Samuel (see Kamen, Martin D.)—194(A)
Rubens, Sidney M. (see Kaplan, Joseph)—188(A)
—— **and J. E. Henderson.** Characteristics and function of anode spots in glow discharges—446
—— **and Joseph Kaplan.** Afterglow in nitrogen-helium mixtures—188(A)
Rubenstein, Pearl J. Relative intensities of $^1S-{}^3P$ and $^1S-{}^1P$ transitions in Mg—1007(L)
Rudnick, Philip, F. G. Slack and John O'Connor. Rotatory power of nickel sulphate at low temperatures—1003(L)
Rusk, Rogers D. Observer as part of an experimental system—1120(T)
Russell, Henry Norris, Robert B. King and Charlotte E. Moore. Arc spectrum of cobalt—407
Sachs, R. G. (see Lyddane, R. H.)—1008(L)
Sakata, Shoichi. Connection between the meson decay and the beta-decay—576(L)
Sampson, J. B. and Frederick Seitz. Theoretical magnetic susceptibilities of metallic lithium and sodium—633
Saunderson, J. L. (see Goudsmit, S.)—36
Sawyer, R. A. (see Schauls, Sister M. Roswitha)—781
Schade, James W. Physics in the manufacture and use of rubber—1120(T)
Scharff-Goldhaber, Gertrud (see Good, William E.)—89(L)
Schauls, Sister M. Roswitha and R. A. Sawyer. New lines and terms in the arc and first spark spectra of molybdenum: Mo I and Mo II—781
Schein, Marcel, E. O. Wollan and Gerhart Groetzinger. Study of the production and absorption of mesotrons in the substratosphere—1027
Schiff, L. I. (see Morrison, P.)—24, 190(A)
Schneider, E. G. (see Oldenberg, O.)—1121(A)
Schoenberg, M. (see Gamow, G.)—1117(L)
Schremp, E. J. and Alfredo Baños, Jr. On the fine structure pattern of cosmic rays at Mexico City—662(L)
Schuchard, E. A. On the ratio N of scattering to capture cross section for thermal neutrons in paraffin—189(A)
—— **and E. A. Uehling.** Further exact solutions of the Boltzmann equation applicable to the diffusion of neutrons—196(A)
—— **and E. A. Uehling.** Steady-state diffusion under conditions of generalized source and incident current distributions—611

Schultz, Howard L., W. L. Davidson, Jr. and L. H. Ott. Application of a cloud chamber to the detection of charged particle groups—198(A)
——, **W. L. Davidson, Jr. and L. H. Ott.** Protons from carbon and aluminum bombarded by deuterons—1043
—— **and William W. Watson.** Protons from the separated isotopes of carbon and neon under deuteron bombardment—1047
Schuman, Ralph H. (see Hoff, Lu)—199(A)
Schwinger, Julian. Neutron scattering in ortho- and para-hydrogen and the range of nuclear forces—1004(L)
—— (see Corben, H. C.)—191(A), 953
—— (see Motz, Lloyd)—26
Sears, W. C. Infra-red spectra of rubber—1120(T)
Seeger, R. J. and E. Teller. Electric breakdown of alkali halides—279(L)
Segrè, E. (see Corson, D. R.)—672
Seitz, Frederick (see Sampson, J. B.)—633
Seligmann, Paul. Theoretical maxima and minima in the anomalous scattering of alpha-particles—492
Shaw, C. H. (see Munier, J. H.)—537
—— **and T. M. Snyder.** Electron scattering in bromine gas—600
Sheppard, S. E. Photographic reversal—93(L)
Shoupp, W. E. (see Haxby, R. O.)—92(L), 199(A), 1035
—— (see Wells, W. H.)—162
Shrader, E. F. Nuclear spin of Cl^{37}—475(L)
—— **and E. Pollard.** Protons from deuteron bombardment of separated chlorine isotopes—199(A)
——, **S. Millman and P. Kusch.** On the nuclear gyromagnetic ratios of the chlorine isotopes—925(L)
Sibaiya, L. Hyperfine structure of ionized mercury lines—925(L)
Sidhu, S. S. (see Letner, Harold R.)—206(A)
—— **and Marc Darrin.** X-ray diffraction studies of anhydrous chromic oxides prepared by different methods—206(A)
Skaggs, Lester S. (see Allison, S. K.)—178(L)
Skellett, A. M. The coronaviser—1121(T)
Slack, C. M. Field emission x-ray tube—206(A)
Slack, F. G. (see Rudnick, Philip)—1003(L)
Slater, J. C. Note on the effect of pressure on the Curie point of iron-nickel alloys—54
Slepian, Joseph and W. E. Berkey. Arc cathodes of low current density at high amperage—204(A)
—— **and W. E. Berkey.** Spark gaps with short time lag—210(A)
Sloan, David H., and Lauriston C. Marshall. Ultra-high frequency power—193(A)
Smith, Fred H. (see Zartman, I. F.)—208(A)
Smith, Lincoln G. and V. Williams. Rotational structure of some fundamental infra-red bands of deuterated formic acid—208(A)
Smith, Nicholas M. (see Allison, S. K.)—178(L)
Smoluchowski, R. (see Calus, H.)—205(A)
—— (see Drynski, T.)—207(A)
Snyder, T. M. (see Shaw, C. H.)—600
Sommers, H. S., Jr. (see Oldenberg, O.)—1121(A)
Spedding, F. H. Absorption of praseodymium ion in solutions and in the solid state—255
Spees, A. H. and C. T. Zahn. Specific charge of the positron—861
Spitzer, Lyman, Jr. Impact broadening of spectral lines—348
Sponer, H. (see Coy, Nettie H.)—709
Squire, Charles F. Abnormal diamagnetism of Ge at low temperatures; specific heat of Zr—202(A)
Starr, C. Magnetic properties of the iron group anhydrous chlorides at low temperatures. II. Theoretical—984
—— **and A. R. Kaufmann.** Magnetic properties of metallic cerium—657(L)
——, **F. Bitter and A. R. Kaufmann.** Magnetic properties of the iron group anhydrous chlorides at low temperatures. I. Experimental—977
Staub, H. and H. Tatel. Anomalous scattering of neutrons by helium. (II)—820
Steigman, J. (see Glasoe, G. N.)—1
Stephens, W. E. (see Haxby, R. O.)—92(L), 199(A), 1035
—— (see Langer, Alois)—759(L)
—— (see Wells, W. H.)—162
Stephenson, S. T. Comparison of x-ray absorption fine structure for two elements in the same crystal—873
—— Note on possible Kronig fine structure in x-ray emission spectra—877
—— X-ray absorption fine structure comparison for two elements in the same crystal—195(A)
Stevenson, A. F. On the theory of the magnetic resonance method of determining nuclear moments—1061
Stever, H. G. (see Neher, H. V.)—191(A), 766
Stewart, G. W., D. O. Holland and L. M. Reynolds. Orientation of liquid crystals by heat conduction—174
Stockbarger, D. C. (see King, Robert B.)—187(A)
Straley, J. W., C. H. Tindal and H. H. Nielsen. Study of the frequencies ν_3 and ν_4 in the infra-red spectrum of SiH_4 and GeH_4—1002(L)
Streib, J. F., W. A. Fowler and C. C. Lauritsen. Disintegration of fluorine by protons—191(A)
Sugawara, Y. (see Okuda, T.)—578(L)
Sugimoto, Asao (see Amaki, Toshio)—659(L)
Sullivan, William H. (see Fajans, Kasimir)—276(L)
Sutton, R. B. (see Barkas, W. H.)—194(A), 383(L)
—— (see Creutz, E. C.)—481
Street, J. N. and J. H. Dillon. Physical characteristics of synthetic rubber—1120(T)
Swann, W. F. G. Theory of cosmic-ray phenomena based upon a single primary component—200(A)
—— **and W. E. Ramsey.** Secondary peak in the Rossi curve for tin—477(L)
Tamm, Ig. Mesons in a Coulomb field—952
—— (see Landau, L.)—1006(L)
Taschek, R. F. (see Kanne, W. R.)—693
Tate, John T. (see Mann, Marvin M.)—340
Tatel, H. (see Staub, H.)—820
Teller, Edward (see Kuper, J. B. Horner)—602
—— (see Seeger, R. J.)—279(L)
Thaxton, Hubert M., William Privette and Daniel Leatherberry. *P*-wave effects on proton-proton scattering in the meson theory—200(A)
Thomas, C. D. and R. C. Colwell. Wave reflections at oblique incidence—203(A)

Thomas, R. Internal pair production in radium C′—714
Tindal, C. H. (see Straley, J. W.)—1002(L)
Tomboulian, D. H. and R. F. Bacher. Evidence for a nuclear electric quadrupole moment for Sb^{123}—52
Tomonaga, S. and G. Araki. Effect of the nuclear Coulomb field on the capture of slow mesons—90(L)
Trump, J. G. Electrostatic x-ray generators for medical use—1120(T)
Turner, C. M. (see Herb, R. G.)—579(L)
Turner, Louis A. Radioactive isotopes of vanadium—679
—— Regularities among the heavy nuclei—181(L)
Uehling, E. A. Density distribution in steady-state diffusion—190(A)
—— (see Schuchard, E. A.)—196(A), 611
Umeda, Kwai. Accurate solution of the Thomas-Fermi-Dirac equation—92(L)
Valasek, Joseph. X-ray emission spectra and electronic energy bands of compounds—213
Van Allen, J. A. (see Huntoon, R. D.)—97
Van Atta, C. M. (see Northrup, D. L.)—199(A)
Van Atta, L. C. (see Northrup, D. L.)—199(A)
Van de Graaff, R. J. (see Northrup, D. L.)—199(A)
Vincent, Mabel S. (see Wick, Frances G.)—578(L)
Vinti, John P. Isotope shifts in boron—879
—— Theorem on nuclear motion in atomic spectra—882
Voigt, Adolf (see Fajans, K.)—177(L)
Walker, H. N. (see Altmann, George O.)—1011
Walker, L. R. (see Ferguson, A. J.)—666
Warner, A. H. and R. H. Neil. Four-gram radium pack of improved design—195(A)
Warren, R. E. (see Herb, R. G.)—579(L)
Watson, William W. (see Pollard, Ernest)—12
—— (see Schultz, Howard L.)—1047
Watt, Bob E. (see Bennett, W. E.)—478(L)
Wells, W. H. (see Haxby, R. O.)—92(L), 199(A), 1035
——, **R. O. Haxby, W. E. Stephens and W. E. Shoupp.** Design and preliminary performance tests of the Westinghouse electrostatic generator—162
Wet, J. S. de. On the spinor equations for particles with arbitrary spin and rest mass zero—236
Wheeler, John A. and H. H. Barschall. Scattering of 2.5-Mev neutrons in helium—682
Whitaker, Martin D. (see Murphy, Edgar J.)—88(L)
White, M. G. (see Barkas, W. H.)—194(A), 383(L)
—— (see Creutz, E. C.)—481
—— (see Delsasso, L. A.)—586
Whitehead, W. L. (see Goodman, Clark)—1121(A)
Wick, Frances G. and Mabel S. Vincent. Luminescence excited by exposure to neutrons—578(L)
Wick, G. C. (see Bernardini, G.)—1017
Wiens, Jacob and Luis W. Alvarez. Spectroscopically pure mercury (198)—1005(L)
Wigner, E. (see Margenau, H.)—103
Wilkins, T. R. and G. Wrenshall. Nuclear energy levels in magnesium—758(L)
Williams, A. O., Jr. Relativistic self-consistent field for Cu^+—723
Williams, E. J. Multiple scattering of fast electrons and alpha-particles, and "curvature" of cloud tracks due to scattering—292
Williams, H. J. (see Bozorth, R. M.)—203(A), 210(A)
——, **R. M. Bozorth and H. Christensen.** Change of length and Young's modulus with magnetization and heat treatment—203(A)
Williams, V. (see Smith, Lincoln G.)—208(A)
Wilson, G. Harold. Theory of gaseous isotope separation in a force field with application to the ultracentrifuge—209(A)
Winch, Ralph P. (see Farnsworth, H. E.)—812
Witmer, Enos E. Theoretical magnetic susceptibility of molecular deuterium as compared with that of molecular hydrogen—202(A)
Wollan, E. O. (see Schein, Marcel)—1027
Wood, Lawrence A. Optical properties of rubber—1120(T)
Wooldridge, D. E. Temperature effects in secondary emission—316
—— **and C. D. Hartman.** Effects of order and disorder on secondary electron emission—381(L)
Wrenshall, G. (see Wilkins, T. R.)—758(L)
Wright, B. T. (see Livingston, R. S.)—656(L)
Wu, C. S. Identification of two radioactive xenons from uranium fission—926(L)
Wu, Ta-You. On the satellite lines in atomic spectra and the excitation of electrons from closed shells—1114
Wyckoff, H. O. and J. E. Henderson. Spatial asymmetry of Cerenkov radiation as a function of electron energy—187(A)
Yasaki, T. (see Nishina, Y.)—660(L)
Yost, W. Jacque. Fock equations and diamagnetic susceptibility for magnesium III—202(A)
—— Self-consistent fields and diamagnetic susceptibility for magnesium III—557
Young, Victor J., A. Ellett and G. J. Plain. Distribution in angle of alpha-particles from lithium bombarded with protons—498
Yunker, E. A. Diurnal variation of the mobility spectrum of the atmospheric ions and the effect of age of ion—193(A)
Zahn, C. T. (see Spees, A. H.)—861
Zartman, I. F. and Fred H. Smith. Absorption of supersonic waves in gases—208(A)
Zener, Clarence (see Barnes, Arthur H.)—87(L)
—— (see Randall, R. H.)—472
Zwicky, F. Hydrodynamics and the morphology of nebulae—478(L); Erratum—758(L)

Analytic Subject Index to Volume 58

References with (A) are to abstracts of papers presented at meetings of the American Physical Society.
References with (L) are to Letters to the Editor.

Acoustics
Ultrasonic absorption in gases, I. F. Zartman, F. H. Smith—208(A)
Ultrasonic absorption in liquids, E. C. Gregg, Jr.—208(A)

Afterglow
In N_2–He, S. M. Rubens, J. Kaplan—188(A)
Temporal effects, J. Kaplan, S. M. Rubens—188(A)

Arcs (see **Discharge of electricity in gases**)

Astrophysics
Cosmic rays and comets, V. Rojansky—1010(L)
Morphology of nebulae, F. Zwicky—478(L); Erratum—758(L)
Neutrinos and stellar evolution, G. Gamow, M. Schoenberg—1117(L)

Atomic and molecular beams
Diffraction and reflection of molecular beams, W. H. Bessey—207(A)

Atomic structure (see also **Spectra, atomic**)
Relativistic self-consistent field for Cu^+, A. O. Williams, Jr.—723

Biophysics
Dosimeter, general purpose, H. M. Parker—196(A)
Electron microscope, Fresnel diffraction, J. Hillier—842(L)
Fluorescence method of identifying bacterial ring rot, H. C. Kelly, V. E. Iverson—189(A)
Photographic recording of gamma-radiation, R. A. Morrison, H. M. Parker—196(A)
Radium pack for treatment, A. H. Warner, R. H. Neil—195(A)

Constants, physical, standards
Charge of β-particle, R. Ladenburg, Y. Beers—757(L)
Fine structure constant, precise determination, R. F. Christy, J. M. Keller—658(L)
Isometric consistency chart for natural constants, J. W. M. DuMond—457
Ratio of e, c, and h, A. Landé—843(L)
Specific charge of positron, A. H. Spees, C. T. Zahn—861
Values of e, e/m, h/e and α, R. T. Birge—658(L)

Contact potentials
Of crystal faces, H. E. Farnsworth, R. P. Winch—812
Temperature dependence of work function, J. G. Potter—623, 928(L); W. B. Nottingham—927(L)

Cosmic radiation
Absorption in Pb at depth of 1000 m water, J. Barnóthy, M. Forró—844(L)
Air mass effect, D. H. Loughridge, P. F. Gast—194(A), 583; H. Arakawa—1118(L)
From comets, V. Rojansky—1010(L)
Decay of penetrating components, E. Nelson—771
Effect of an eclipse, A. H. Compton—841(L)
Electronic and mesotronic component, G. Bernardini, B. N. Cacciapuoti, B. Ferretti, O. Piccioni, G. C. Wick—1017
Fine structure in directional intensity, D. Cooper—288; E. J. Schremp, A. Baños, Jr.—662(L)
Ionizing particles from non-ionizing agents, B. Rossi, L. Jánossy, G. D. Rochester, M. Bound—761
Latitude effect above 50°N, P. F. Gast, D. H. Loughridge—194(A)
Latitude effect for showers, H. V. Neher, W. H. Pickering—665
Latitude effect at southern latitudes, E. T. Clarke, S. A. Korff—179(L), 201(A)
Lifetime of mesotron, H. V. Neher, H. G. Stever—191(A), 766
Main and shadow cones, H. P. Koenig—385
Production and absorption of mesotrons, M. Schein, E. O. Wollan, G. Groetzinger—1027
Production of mesotrons at 29,000 feet, G. Herzog, W. H. Bostick—278(L)
Rossi curve for tin, W. F. G. Swann, W. E. Ramsey—477(L)
At sea level, counter studies, G. O. Altmann, H. N. Walker, V. F. Hess—1011
Theory based upon single primary component, W. F. G. Swann—200(A)
Time-variation at high altitudes, W. P. Jesse—281

Crystalline state
Aging in oversaturated solid solutions, H. Calus, R. Smoluchowski—205(A)
Anhydrous chromic oxides, properties of, S. S. Sidhu, M. Darrin—206(A)
Constitution of metallic beryllium, C. Herring, A. G. Hill—132
Distribution in Al-Ag alloys during aging, C. S. Barrett, A. H. Geisler—206(A)
Electric breakdown of alkali halides, R. J. Seeger, E. Teller—279(L)
Electronic energy bands of compounds, J. Valasek—213
Ferromagnetic anisotropy and itinerant electron model, H. Brooks—909
Fields in crystals, R. H. Lyddane, K. F. Herzfeld, R. G. Sachs—1008(L)
Grain boundary substance in Cd, B. L. Miller—206(A)
Internal friction of Al, R. H. Randall, C. Zener—472
Internal friction at high temperatures, A. H. Barnes, C. Zener—87(L)
Internal friction single metal crystals, T. A. Read—371
Liquid crystals, orientation by heat conduction, G. W. Stewart, D. O. Holland, L. M. Reynolds—174
Order in Fe-Ni alloys; neutron transmission, F. C. Nix, H. G. Beyer, J. R. Dunning—1031
Resistance and order-disorder in Cd-Mg alloys, M. A. Benson, G. A. Anslow—1121(A)

Crystalline state (continued)
Rochelle salt, properties of, H. Mueller—565, 805
Self-consistent solution to vacancy problem in metals, H. B. Huntington—209(A)
Silver-rich, Ag-Mg alloys, H. R. Letner, H. H. George, S. S. Sidhu—206(A)
Single-crystal Al wires, law of Magnus, C. Y. Ma, W. Band—479(L)
Torsional frequencies of crystal specimens, W. F. Brown, Jr.—998
Van der Waals forces at metallic surfaces, J. Bardeen—727
Young's modulus of beta-brass single crystals, J. S. Rinehart—365

Dielectric constants (see **Dielectrics and dielectric properties**)
Dielectrics and dielectric properties
Electric fields in vibrating crystals, R. H. Lyddane, K. F. Herzfeld, R. G. Sachs—1008(L)
Of gases and water vapor at high frequencies, J. P. Hagen, M. Distad, F. C. Iseley—208(A)
Diffraction of electrons (see **Electron diffraction**)
Diffusion (see also **Thermal diffusion**)
Distribution in steady-state, E. A. Uehling—190(A)
Solutions of Boltzmann equation, E. A. Schuchard, E. A. Uehling—196(A)
Steady-state diffusion conditions, E. A. Schuchard, E. A. Uehling—611
Temperature in measurements of coefficients, H. Brown—661(L)
In ultracentrifuge, isotope separation, G. H. Wilson—209(A)
Discharge of electricity in gases
Anode spots in glow discharges, S. M. Rubens, J. E. Henderson—446
Arc cathodes of low current density, J. Slepian, W. E. Berkey—204(A)
Breakdown potential for sphere-gaps, J. M. Meek—195(A)
Photographs of copper arc, R. C. Mason—204(A)
Positive corona discharge, K. S. Fitzsimmons, L. B. Loeb, J. M. Meek—187(A)
Pulses in negative point-to-plane corona in air, L. B. Loeb, G. G. Hudson, A. F. Kip—195(A)
Reignition voltage measurements, M. Garbuny, L. H. Matthias—182(L)
Spark gaps with short time lag, J. Slepian, W. E. Berkey—210(A)
Sparking potential, initial photoelectric currents, J. M. Meek—196(A)
Sparking threshold in air, W. R. Haseltine—188(A)
Theory of recombination, G. Jaffé—968
Time-lag analysis of Townsend discharge, R. W. Engstrom, W. S. Huxford—67
Disintegration and excitation of nucleus (see also **Radioactivity**)
Anomalous scattering of α-particles, maxima and minima, P. Seligmann—492
Directional correlation of successive quanta, D. R. Hamilton—122
Distribution in angle, α-particles from F, W. B. McLean, A. Ellett, J. A. Jacobs—500
Distribution in angle, α-particles from Li, V. J. Young, A. Ellett, G. J. Plain—498
Distribution in angle in $F^{19}(p,\alpha)$, E. Gerjuoy—503
Distribution in angle of protons, R. D. Huntoon, A. Ellett, D. S. Bayley, J. A. Van Allen—97
Emission of three particles from excited nucleus, J. M. Cork, W. Middleton—474(L)
Energy of α-particles in $Li^6(p,\alpha)He^3$, G. J. Perlow—218; L. C. Miller—936
Energy released in $Li^6(p,\alpha)He^3$, S. K. Allison, L. C. Miller, G. J. Perlow, L. S. Skaggs, N. M. Smith, Jr.—178(L)
Of F by H^1, J. F. Streib, W. A. Fowler, C. C. Lauritsen—191(A)
γ-ray resonances from carbon, W. E. Bennett, T. W. Bonner—183(L)
γ-rays from $C^{13}+H^1$, C. C. Lauritsen, W. A. Fowler—193(A)
γ-rays from $N^{15}+H^1$, W. A. Fowler, C. C. Lauritsen—192(A)
Of H^2, Be and In by x-rays, D. L. Northrup, C. M. Van Atta, R. J. Van De Graaff, L. C. Van Atta—199(A)
Of isotopes of C and Ne, half-life of C^{14}, H. L. Schultz, W. W. Watson—1047
Neutrons from $C^{12}+H^2$, resonances, T. W. Bonner, E. Hudspeth, W. E. Bennett—185(L)
Of N^{14} and N^{15} by deuterons, M. G. Holloway, B. L. Moore—847
Photonuclear disintegration of Fe and Mn, P. R. Carlson, J. E. Henderson—193(A)
Protons from C and Al, H. L. Schultz, W. L. Davidson, Jr., L. H. Ott—1043
Protons from $C^{13}+H^2$, W. E. Bennett, T. W. Bonner, E. Hudspeth, B. E. Watt—478(L)
Protons from $C^{12}+H^2$, resonances, M. M. Rogers, W. E. Bennett, T. W. Bonner, E. Hudspeth—186(L)
Protons from Cl isotopes, E. F. Shrader, E. Pollard—199(A)
Reactions $B^{11}(p,n)C^{11}$ and $N^{14}(p,\alpha)C^{11}$, L. A. Delsasso, M. G. White, W. Barkas, E. C. Creutz—586
Resonances in nuclear reactions, G. Breit—506
Thresholds for (p,n) reactions of Li, Be, B, and C, R. O. Haxby, W. E. Shoupp, W. E. Stephens, W. H. Wells—1035
Dissociation
Of water vapor and ammonia by electron impact, M. M. Mann, A. Hustrulid, J. T. Tate—340

Elasticity
Compressibility of hydrocarbons, pressure-temperature dependence, B. L. Hicks—209(A)
Hysteresis phenomena in Rochelle salt, W. P. Mason—744
Internal friction of Al, R. H. Randall, C. Zener—472
Internal friction single metal crystals, T. A. Read—371
Near phase transitions, H. F. Ludloff—209(A)

Elasticity (continued)
Torsional frequencies, W. F. Brown, Jr.—998
Young's modulus of beta-brass single crystals, J. S. Rinehart—365
Young's modulus, heat treatment and magnetization, H. J. Williams, R. M. Bozorth, H. Christensen—203(A)
Young's modulus and Poisson's ratio by x-ray method, L. L. Davenport—206(A)
Electrical conductivity and resistance
Boundary conditions for superconductor, E. Cook—361
Directional dependence, E. M. Baroody—793
Electric breakdown of alkali halides, R. J. Seeger, E. Teller—279(L)
High frequency resistance of Fe, J. B. Hoag, C. R. Cox—203(A)
And order-disorder in Cd-Mg alloys, M. A. Benson, G. A. Anslow—1121(A)
Of tartaric acid crystals, J. J. Brady, B. Elle—195(A)
Theory of superconductors, E. Cook—357
Electromagnetic theory
Electromagnetic waves inside metal guide, Hsü Chang Pen—193(A)
Interaction energies in radiation theory, H. Hurwitz, Jr.—467
Wave reflections at oblique incidence, C. D. Thomas, R. C. Colwell—203(A)
Electron diffraction
On glass surface, Hirosi Kamogawa—660(L)
Electrons (see also **Positrons**)
Pair production, J. R. Feldmeier, G. B. Collins—200(A)
Electrons, secondary
Effects of order and disorder, D. E. Wooldridge, C. D. Hartman—381(L)
From Pt on Al, P. L. Copeland—604
Produced by He, Ne, and A ions on Ni, M. Healea, C. Houtermans—608
Temperature effects, D. E. Wooldridge—316
Errata
On the angular distribution of fast neutrons scattered by hydrogen, deuterium, and helium, H. H. Barschall, M. H. Kanner—1010(L)
Hydrodynamics and the morphology of nebulae, F. Zwicky—758(L)
Excitation of nuclei (see **Disintegration and excitation of nucleus**)

Field currents
Into dielectric liquids, W. R. LePage, L. A. DuBridge—61
Energy losses, G. M. Fleming, J. E. Henderson—887
From tantalum, G. M. Fleming, D. M. Holtoner—189(A)
In x-ray tube, C. M. Slack—206(A)
Fission of nucleus
Cloud-chamber studies of tracks, K. J. Brostrøm, J. K. Bøggild, T. Lauritsen—651
Deuteron induced in U and Th, I. C. Jacobsen, N. O. Lassen—867
Fast neutron threshold for U fission, R. O. Haxby, W. E. Shoupp, W. E. Stephens, W. H. Wells—199(A)
Heat of fission of U, M. C. Henderson—200(A), 774
Passage of U fission fragments through matter, W. E. Lamb, Jr.—696
Photo-fission, R. O. Haxby, W. E. Shoupp, W. E. Stephens, W. H. Wells—92(L)
Products from gases in U fission, G. N. Glasoe, J. Steigman—1
Radioactive Ba and Sr from photo-fission of U, A. Langer, W. E. Stephens—759(L)
Radioactive Xe isotopes, C. S. Wu—926(L)
Scattering and stopping of fragments, N. Bohr—654
Spontaneous fission of U, Flerov and Petrjak—89(L)
Successive transformations, N. Bohr—864
Of U by fast neutrons, Y. Nishina, T. Yasaki, K. Kimura, M. Ikawa—660(L)
Velocity-range relation for fragments, N. Bohr, J. K. Bøggild, K. J. Brostrøm, T. Lauritsen—839
Friction
Boundary lubrication, F. Morgan, M. Muskat, D. W. Reed—205(A)
Internal friction of Al, R. H. Randall, C. Zener—472
Internal friction, single metal crystals, T. A. Read—371

Geophysics
Magnetism of earth, J. C. Slater—54
Radioactivity of rocks and associated petroleum, C. Goodman, K. G. Bell, W. L. Whitehead—1121(A)
Gyromagnetization (see **Magnetic properties**)

High voltage tubes and machines
Electrostatic generator, concentric electrodes, R. G. Herb, C. M. Turner, C. M. Hudson, R. E. Warren—579(L)
Induction accelerator, D. W. Kerst—841(L)
Westinghouse electrostatic generator, W. H. Wells, R. O. Haxby, W. E. Stephens, W. E. Shoupp—162
Hyperfine structure (see also **Nuclear moments and spin**)
Of Sb^{123}, D. H. Tomboulian, R. F. Bacher—52
Of forbidden lines of Pb I, S. Mrozowski—1086
Upon magnetic rotation, B. J. Miller—258
Of Hg lines, L. Sibaiya—925(L)
Radiofrequency spectra of Na, Rb, and Cs, S. Millman, P. Kusch—438

Instruments (see **Methods and instruments**)
Ionization by collision (see **Ionization potentials**)
Ionization potentials
Of ions from methyl and ethyl alcohol, C. S. Cummings, II., W. Bleakney—787
Of H_2O and NH_3 vapor, M. M. Mann, A. Hustrulid, J. T. Tate—340
Ionosphere
Ionization during eclipse, J. A. Pierce, A. J. Higgs, E. C. Halliday—1119(L)
Ions, high speed
Of C^{++++++}, L. W. Alvarez—192(A)
Ions, mobility
Diurnal variation of atmospheric ions, E. A. Yunker—193(A)
In insulating liquids, A. Gemant—904
In pure H_2 high current densities, W. H. Bennett—992

Isotopes
Of carbon, L. A. Delsasso, M. G. White, W. Barkas, E. C. Creutz—586
$C^{13}H_2-N^{14}$ mass difference, E. B. Jordan—1009(L)
Clusius-Dickel isotope separator, W. Krasny-Ergen—1078
Isotopic weights of Cl, A, and Fe, T. Okuda, K. Ogata, K. Aoki, Y. Sugawara—578(L)
Mass of He^3, S. K. Allison, L. C. Miller, G. J. Perlow, L. S. Skaggs, N. M. Smith, Jr.—178(L)
Pure Hg^{198}, J. Wiens, L. W. Alvarez—1005(L)
Separation in centrifuge, G. H. Wilson—209(A)

Kinetic theory of gases
Transport cross section of He, E. J. Hellund—278(L)

Liquids
Diffraction of x-rays by liquid argon, A. Eisenstein, N. S. Gingrich—307
Structure of liquid argon, E. P. Miller, K. Lark-Horovitz—207(A)
Structure of liquid benzene, cyclohexane, and their mixtures, W. P. Davey, P. H. Bell—207(A)

Luminescence
Excited by neutrons, F. G. Wick, M. S. Vincent—578(L)
Spectrum of zinc sulphide powders, effect of activator, C. J. Brasefield—436
Theory of cathode luminescence, Ugo Fano—544

Magnetic moments (see also **Nuclear moments and spin**)
Of H_2, D_2, and HD, N. F. Ramsey, Jr.—226

Magnetic properties
Anisotropy and itinerant electron model, H. Brooks—909
Anomalous magnetic torque curves, R. M. Bozorth, H. J. Williams—210(A)
Change of length and Young's modulus, H. J. Williams, R. M. Bozorth, H. Christensen—203(A)
Colloid patterns on ferromagnetic crystal surfaces, W. C. Elmore—640
Curie point, effect of pressure, J. C. Slater—54
Diamagnetic susceptibility for Mg III, W. J. Yost—202(A), 557
Diamagnetism of H_2, N. F. Ramsey, Jr.—190(A)
Domain magnetization, T. Holstein, H. Primakoff—1098
Gyromagnetic ratios of Cl isotopes, E. F. Shrader, S. Millman, P. Kusch—925(L)
Of Fe-Al alloys, R. M. Bozorth, H. J. Williams, R. J. Morris, Jr.—203(A)
Of Ge, abnormal diamagnetism, C. F. Squire—202(A)
Of iron group chlorides, experimental, C. Starr, F. Bitter, A. R. Kaufmann—977
Of iron group chlorides, theoretical, C. Starr—984
Magnetic saturation, theory of, W. F. Brown, Jr.—202(A), 736
Of metallic Ce, C. Starr, A. R. Kaufmann—657(L)
Permeability of iron in a high frequency field, J. B. Hoag, C. R. Cox—203(A)
Susceptibilities of Ni and Ni alloys, K. E. Keyes—202(A)
Susceptibility of molecular deuterium, E. E. Witmer—202(A)
Theoretical susceptibilities of Li and Na, J. B. Sampson, F. Seitz—633
Vicalloy, a new permanent magnet material, E. A. Nesbitt, G. A. Kelsall—203(A)

Mass defects (see **Isotopes**)

Mechanics, quantum—atomic structure and spectra
Thomas-Fermi-Dirac equation, Kwai Umeda—92(L)

Mechanics, quantum—general
Force fields from scattering, F. C. Hoyt, W. E. Frye—784
"Radius" of elementary particles, L. Landau—1006(L)
Scattering matrix of radioactive states, G. Breit—1068
Spin and statistics, W. Pauli—716
Spinor equations for particles, J. S. de Wet—236

Mesotrons (see also **Cosmic radiation**)
Capture of slow mesons, S. Tomonaga, G. Araki—90(L)
In Coulomb field, Ig. Tamm—952
Electromagnetic properties, H. C. Corben, J. Schwinger—191(A), 953
Interaction with γ-rays, R. F. Christy, S. Kusaka—191(A)
Mean lifetime, H. V. Neher, H. G. Stever—191(A), 766; E. Nelson—771 (See footnote p. 1019)
Meson decay and beta-decay, Shoichi Sakata—576(L)
Produced by photon, W. M. Powell—474(L)
Production by non-ionizing rays, B. Rossi, V. H. Regener—837
Production at 29,000 feet, G. Herzog, W. H. Bostick—278(L)
In substratosphere, M. Schein, E. O. Wollan, G. Groetzinger—1027
Theory of, C. Møller—1118(L)

Methods and instruments
Atmospheric pressure G-M counters, S. C. Brown—1121(A)
Canal-ray ion source, W. H. Goss, J. E. Henderson—192(A)
Cauchois focusing x-ray spectrograph, F. R. Hirsh, Jr.—78
Charge of β-particle, direct determination, R. Ladenburg, Y. Beers—757(L)
"Curvature" of cloud tracks, E. J. Williams—292
Detection of charged particle groups with cloud chamber, H. L. Schultz, W. L. Davidson, Jr., L. H. Ott—198(A)
Dielectric constant at ultra-high frequencies, J. P. Hagen, M. Distad, F. C. Iseley—208(A)
Dosimeter, general purpose, H. M. Parker—196(A)
Efficiency of γ-ray counters, F. Norling—277(L)
Electron diffraction on glass surface, Hirosi Kamogawa—660(L)
Electron microscope, L. Marton—57
Electron microscope, Fresnel diffraction, J. Hillier—842(L)
Electrostatic deflection of α-particles, L. C. Miller—936
Electrostatic generator, concentric electrodes, R. G. Herb, C. M. Turner, C. M. Hudson, R. E. Warren—579(L)

Methods and instruments (continued)
Extraction of ions from low pressure arc, Hoff Lu, R. H. Schuman—199(A)
Fluorescence method of identifying bacterial ring rot, H. C. Kelly, V. E. Iverson—189(A)
Halation on kinescope screens, R. F. Baker—208(A)
High energy carbon ions, L. W. Alvarez—192(A)
Induction accelerator, D. W. Kerst—841(L)
Industrial radiography, C. Pecher—843(L)
Isotope separator; Clusius-Dickel, W. Krasny-Ergen—1078
Klystron efficiency, E. U. Condon—204(A)
Lattice constants and density, F. Foote, E. R. Jette—81
Magnetic resonance and nuclear moments; theory of, A. F. Stevenson—1061
Magnetic spectrograph for α-particles, R. Ringo—942
Magnetic ultra-micrometer, W. B. Ellwood—204(A)
Period of photon emission, counter discharge, W. E. Ramsey—476(L)
Photographic plate spectrum of $d-d$ neutrons, H. T. Richards, E. Hudspeth—382(L)
Photographic recording of gamma-radiation, R. A. Morrison, H. M. Parker—196(A)
Photographic registration of particles during bombardment, J. M. Cork, P. F. Bartunek—580(L)
Powders of uniform NaCl crystals in various sizes, F.-H. Marshall—642
Precipitation of dirt, R. A. Nielsen—205(A)
Radioactive neutron sources, E. J. Murphy, W. C. Bright, M. D. Whitaker, S. A. Korff, E. T. Clarke—88(L)
Radium pack for treatment, A. H. Warner, R. H. Neil—195(A)
Sensitive time of cloud chamber, W. E. Hazen—194(A)
Source of "forbidden" lines, S. Mrozowski—1086
Thermistor voltage regulator, C. B. Green, G. L. Pearson—204(A)
Ultra-high frequency power, D. H. Sloane, L. C. Marshall—193(A)
Vicalloy, a new permanent magnet material, E. A. Nesbitt, G. A. Kelsall—203(A)
Westinghouse electrostatic generator, W. H. Wells, R. O. Haxby, W. E. Stephens, W. E. Shoupp—162
Young's modulus and Poisson's ratio by x-ray methods, L. L. Davenport—206(A)
Mobility of ions (see **Ions, mobility**)
Molecular structure and constants (see also **Spectra, molecular** and **Raman spectra**)
Quadrupole moment of H_2, N. F. Ramsey, Jr.—190(A)

Neutrons
Capture cross sections, C. Lapointe, F. Rasetti—554; F. Rasetti—869
Capture by U^{238}, E. T. Booth, J. R. Dunning, A. V. Grosse, A. O. Nier—475(L)
From $C^{12}+H^2$, resonances, T. W. Bonner, E. Hudspeth, W. E. Bennett—185(L)
Cross sections for the (n, α) and (n, p) reactions, Toshio Amaki, Asao Sugimoto—659(L)
Photographic plate spectrum, H. T. Richards, E. Hudspeth—382(L)
Scattering capture cross section ratio, E. A. Schuchard—189(A)
Scattering in He, J. A. Wheeler, H. H. Barschall—682
Nuclear moments and spin (see also **Hyperfine structure**)
Of Cl^{37}, E. F. Shrader—475(L)
Gyromagnetic ratios of Cl isotopes, E. F. Shrader, S. Millman, P. Kusch—925(L)
Magnetic of C^{13}, R. H. Hay—180(L); D. R. Inglis—577(L)
Magnetic of odd nuclei, H. Margenau, E. Wigner—103
Quadrupole moment of Sb^{123}, D. H. Tomboulian, R. F. Bacher—52
Theory of magnetic resonance method, A. F. Stevenson—1061
Nuclear structure (see also **Disintegration of nucleus**)
Directional correlation of successive quanta, D. R. Hamilton—122
Energy levels in Mg, T. R. Wilkins, G. Wrenshall—758(L)
Excited state of He^4, R. D. Park, J. C. Mouzon—43
γ-ray resonances from carbon, W. E. Bennett, T. W. Bonner—183(L)
Ground states of Be^{10} and C^{10}, E. P. Cooper, E. C. Nelson—1117(L)
Lower levels of Br^{80}, A. P. Grinberg, L. I. Roussinow—181(L)
Nature of nuclear forces, L. Landau, I. Tamm—1006(L)
Nuclear forces, theory of, C. L. Critchfield, W. E. Lamb, Jr.—46
Quadrupole moment of Sb^{123}, D. H. Tomboulian, R. F Bacher—52
Quadrupole moment of deuteron, A. Nordsieck—310
Range of forces, J. Schwinger—1004(L)
Regularities among heavy nuclei, L. A. Turner—181(L)
Resonance levels of Rh and In, J. Hornbostel, H. H. Goldsmith, J. H. Manley—18
Resonances in nuclear reactions, G. Breit—506
Spin-orbit coupling in He^5, S. M. Dancoff—190(A), 326

Optical constants and properties
Of alkali metals in ammonia, H. von R. Jaffe—207(A)
Of N_2, A_1, CO_2, optical dispersion and molar refraction, C. E. Bennett—263
Rotatory power of nickel sulphate, P. Rudnick, F. G. Slack, J. O'Connor—1003(L)

Photoelectric effect and properties; cells
Work function of crystal faces, H. E. Farnsworth, R. P. Winch—812
Photography
Photographic reversal, S. E. Sheppard—93(L)
Photons
Period of photon emission, W. E. Ramsey—476(L)
Piezoelectric effect
Hysteresis phenomena in Rochelle salt, W. P. Mason—744
Rochelle salt, properties of, H. Mueller—565, 805

Polarization of radiation
Emitted by exploded wires, W. M. Cohn—50, 188(A)
Resonance radiation, B. J. Miller—258
Positrons
Pair production, J. R. Feldmeier, G. B. Collins—200(A)
Specific charge, A. H. Spees, C. T. Zahn—861
Proceedings of the American Physical Society
Metropolitan Section, Meeting, November 15, 1940—1121
New England Section, Meeting, October 19, 1940—1120
Ohio Section: Ohio State University Meeting, May 9–11, 1940—96; Akron Meeting, October 11–12, 1940—1120
Pittsburgh, Pennsylvania, Meeting, June 20–22, 1940—198
Seattle, Washington, Meeting, June 18–21, 1940—187

Radiation
Cerenkov radiation, spatial asymmetry, H. O. Wyckoff, J. E. Henderson—187(A)
Radio (see also **Ionosphere**)
Variation in intensity of signals, R. C. Colwell—204(A)
Wave reflections at oblique incidence, C. D. Thomas, R. C. Colwell—203(A)
Radioactivity (see also **Disintegration and excitation of nucleus**)
Of Ba and Cs, D. C. Kalbfell, R. A. Cooley—91(L)
β-radiation from Si^{27} and P^{30}, W. H. Barkas, E. C. Creutz, L. A. Delsasso, R. B. Sutton, M. G. White—194(A), 383(L)
β-rays from Cu^{64}, J. Backus—192(A)
Of Br and I bombarded by H^1, E. C. Creutz, L. A. Delsasso, R. B. Sutton, M. G. White, W. H. Barkas—481
Br^{80} isomer, decay of, D. DeVault, W. F. Libby—688
Of C^{14}, M. D. Kamen, S. Ruben—194(A); H. L. Schultz, W. W. Watson—1047
Decay constant of H^3, R. D. O'Neal, M. Goldhaber—574
$(d, 2n)$ reaction in Cu, R. S. Livingston, B. T. Wright—656(L)
Charge of β-particle, R. Ladenburg, Y. Beers—757(L)
Element 85, D. R. Corson, K. R. MacKenzie, E. Segrè—672
Of $_{14}Si^{27}$, $_{16}S^{31}$, and $_{18}A^{38}$, L. D. P. King, D. R. Elliott—846(L)
γ-ray resonances from carbon, W. E. Bennett, T. W. Bonner—183(L)
γ-rays from Re, E. C. Creutz, W. H. Barkas, N. H. Furman—1008(L)
Of Au, J. M. Cork, J. Halpern—201(A)
Internal conversion of γ-radiation, M. H. Hebb, E. Nelson—486
Internal conversion of γ-radiation from Au, J. L. Lawson, J. M. Cork—580(L)
Internal pair production, R. Thomas—714
Isotopes of V, L. A. Turner—679
K-electron capture, P. Morrison, L. I. Schiff—24, 190(A)
Of krypton, E. P. Clancy—88(L)
Long-lived isotopes of Y, C. Pecher—843(L)
Of Mn, proton induced, A. Hemmendinger—929
Multiple scattering of electrons and α-particles, E. J. Williams—292
Of Ne, separated isotopes, E. Pollard, W. W. Watson—12
Photographic recording of γ-radiation, R. A. Morrison, H. M. Parker—196(A)
Possible scheme of radioactive periods, G. R. Dickson, E. J. Konopinski—949
Products from gases in U fission, G. N. Glasoe, J. Steigman—1
Radioactive Br produced by γ-radiation, W. H. Barkas, P. R. Carlson, J. E. Henderson, W. H. Moore—577(L)
Radioactive hydrogen, L. W. Alvarez, R. Cornog—197(A)
Radioactive neutron sources, E. J. Murphy, W. C. Bright, M. D. Whitaker, S. A. Korff, E. T. Clarke—88(L)
Radium pack of improved design for treatment, A. H. Warner, R. H. Neil—195(A)
Resonance capture of neutrons by U^{238}, E. T. Booth, J. R. Dunning, A. V. Grosse, A. O. Nier—475(L)
Of Re and W, K. Fajans, W. H. Sullivan—276(L)
Of rocks and associated petroleum, C. Goodman, K. G. Bell, W. L. Whitehead—1121(A)
Scattering matrix of radioactive states, G. Breit—1068
Of Sr, Y and Zr, L. A. DuBridge, J. Marshall—7
Of Tl, K. Fajans, A. F. Voigt—177(L)
Of U, seven-day activity, E. McMillan—178(L)
Velocity spectrum of α-particles, R. Ringo—942
Of Xe from U fission, C. S. Wu—926(L)
Raman spectra
Cyanate ion, disappearance of, F. F. Cleveland—189(A)
Relativity
Relativity misconceptions, E. M. Little—191(A)
Resonance radiation (see also **Spectra, etc.**)
Magnetic rotation, B. J. Miller—258
Pressure effect, Ch'en Shang-Yi—884

Scattering of electrons, neutrons, and ions (see also **Electron diffraction**)
Of α-particles by C and O, A. J. Ferguson, L. R. Walker—666
Anomalous scattering of α-particles, P. Seligmann—492
Calculation of force fields, F. C. Hoyt, W. E. Frye—784
Capture cross sections for neutrons, C. Lapointe, F. Rasetti—554
Crystalline structure and scattering of electrons, N. L. Oleson, K. T. Chao, H. R. Crane—201(A)
Distribution in angle, α-particles from F, W. B. McLean, A. Ellett, J. A. Jacobs—500
Distribution in angle, α-particles from Li, V. J. Young, A. Ellett, G. J. Plain—498
Distribution in angle of protons from H^2+H^2, R. D. Huntoon, A. Ellett, D. S. Bayley, J. A. Van Allen—97
Electron path lengths, M. E. Rose—90(L)
Electron scattering in Br, C. H. Shaw, T. M. Snyder—600
Electron scattering in He, J. B. H. Kuper, E. Teller—602
Of electrons, S. Goudsmit, J. L. Saunderson—36

Scattering of electrons, neutrons, and ions (continued)
Of electrons by Al, C. T. Chase, R. T. Cox—243
Of fast neutrons scattered by H, D, and He, H. H. Barschall, M. H. Kanner—590, 1010(L)
Of He in He, R. L. Mooney—871
Of neutrons in He, J. A. Wheeler, H. H. Barschall—682; H. Staub, H. Tatel—820
Of neutrons in ortho- and parahydrogen, L. W. Alvarez, K. S. Pitzer—1003(L); J. Schwinger—1004(L)
Proton-proton scattering and meson theory, H. M. Thaxton, W. Privette, D. Leatherberry—200(A)
Of protons by neutrons, W. E. Good, G. Scharff-Goldhaber—89(L)
Resonance scattered protons from B^{11} and F^{19}, search for, W. R. Kanne, R. F. Taschek, G. L. Ragan—693
Resonance scattering of H^1 and n on He, theory of, F. Bloch—829
Scattering, capture cross section ratio for neutrons, E. A. Schuchard—189(A)
Single scattering of electrons, R. B. Randels, K. T. Chao, H. R. Crane—201(A)
Of thermal neutrons by crystals, F. Rasetti—321
Of thermal neutrons by deuterons, L. Motz, J. Schwinger—26
Secondary electrons (see **Electrons, secondary**)
Solid state (see **Crystalline state**)
Specific heat
Of Zr, C. F. Squire—202(A)
Spectra, absorption
CS_2 bands in ultraviolet, L. N. Liebermann—183(L)
Of ClO_2, J. B. Coon—926(L)
Of Pr ion in solutions and in solid state, F. H. Spedding—255
Of SiH_4 and GeH_4, J. W. Straley, C. H. Tindal, H. H. Nielsen—1002(L)
Solutions of alkali metals in ammonia, H. von R. Jaffe—207(A)
Of zinc sulphide powders, effect of activator, C. J. Brasefield—436
Spectra, atomic
Broadening of Rb lines in He and A, Ch'en Shang-Yi—1051
Of Co I, H. N. Russell, R. B. King, C. E. Moore—407
f values of Cd I and Cu I lines, R. B. King, D. C. Stockbarger—187(A)
Of highly ionized A, W. L. Parker, L. W. Phillips—93(L)
Inverted multiplets in Mg I, L. Pincherle—251
Isotope shift in B, J. P. Vinti—879
Of Pb I forbidden lines, S. Mrozowski—189(A)
Of Mo I and Mo II, M. R. Schauls, R. Sawyer—781
Ch'en Shang-Yi—884
Pressure effects, Rb lines, Ch'en Shang-Yi—884; Ch'en Shang-Yi, Pao Chia-Shan—1058
Radiofrequency spectra of Na, Rb, and Cs, S. Millman, P. Kusch—438
Satellite lines, excitation from closed shells, Ta-You Wu—1075
Theorem on nuclear motion, J. P. Vinti—882
Transitions in Mg, P. J. Rubenstein—1007(L)
Of W, O. Laporte, J. E. Mack—188(A)
Spectra, general
Hyperfine structure, magnetic rotation, resonance radiation, B. J. Miller—258
Impact broadening, L. Spitzer, Jr.—348
Interaction in W I in magnetic field, J. H. Roberson, J. E. Mack, G. R. Harrison—895
Pure Hg^{198} for spectroscopic use, J. Wiens, L. W. Alvarez—1005(L)
Spectra, molecular (see also **Molecular structure and constants**)
Of SbN, N. H. Coy, H. Sponer—709
Infra-red bands of deuterated formic acid, L. G. Smith, V. Williams—208(A)
Intensity of CO bands; electron impact, G. E. Hansche—1075
Isotope shift in HgH^+ and HgD^+, S. Mrozowski—332
Isotope shift in spectrum of ZnH, S. Mrozowski—597
Rotational radiofrequency spectra of H_2, D_2, and HD, N. F. Ramsey, Jr.—226
Thermal reaction between H_2 and O_2, O. Oldenberg, E. G. Schneider, H. S. Sommers, Jr.—1121(A)
Spectroscopy, technique
Source of "forbidden" lines, S. Mrozowski—1086
Superconductivity (see **Electrical conductivity and resistance**)

Thermal conductivity
Liquid crystals, orientation by heat conduction, G. W. Stewart, D. O. Holland, L. M. Reynolds—174
Of metals, C. C. Bidwell—561
Thermal diffusion
Approach to equilibrium, J. Bardeen—94(L)
Theory of, for isotopes, R. C. Jones—111
Thermionic emission of electrons; Emitting surfaces
Into dielectric liquids, W. R. LePage, L. A. DuBridge—61
Energy losses and thermionic emission, G. M. Fleming, J. E. Henderson—887
Temperature dependence of work function, J. G. Potter—623, 928(L); W. B. Nottingham—927(L)
Thermodynamics
Extension of second law, irreversible processes, P. W. Bridgman—845(L)
Irreversible processes, second law, simple fluid, C. Eckart—267; fluid mixtures—269, 924; relativistic theory of simple fluid—919
Thermoelectric effects
Single-crystal Al wires, law of Magnus, C. Y. Ma, W. Band—479(L)

Vacuum tubes
Halation on kinescope screens, R. F. Baker—208(A)
Influence of "cold ends," vacuum-tube air coolers, I. E. Mouromtseff—204(A)
Klystron efficiency, E. U. Condon—204(A)
Van der Waals forces
At metallic surfaces, J. Bardeen—727
Viscosity
Effect of pressure; lubricants, M. Muskat, H. H. Evinger—205(A)
Of He temperature dependence, E. J. Hellund—192(A)
Transport cross section of He, E. J. Hellund—278(L)

X-rays, absorption
Of Cu-Ni alloys, H. Friedman, W. W. Beeman—400
Of Cu-Zn alloys, J. A. Bearden, H. Friedman—387
Fine structure for two elements in same crystal, S. T. Stephenson—195(A), 873
In gaseous, liquid and solid states, T. Drynski, R. Smoluchowski—207(A)
Of Mg and Al, J. H. Munier, J. A. Bearden, C. H. Shaw—537
Of Zn-Ni alloys, J. A. Bearden, W. W. Beeman—396
X-rays, diffraction, scattering, reflection, refraction, and polarization
Diffuse scattering, theory of, G. E. M. Jauncey, G. G. Harvey—179(L)
Effect of crystal size on reflection, F.-H. Marshall—642
By liquid argon, A. Eisenstein, N. S. Gingrich—307
X-rays, emission (see also **X-rays, spectra and spectroscopy, etc.**)
Of Cu-Ni alloys, H. Friedman, W. W. Beeman—400
Of Cu-Zn alloys, J. A. Bearden, H. Friedman—387
Electronic energy bands of compounds, J. Valasek—213
Kronig fine structure, S. T. Stephenson—877
Modified reflections, G. E. M. Jauncey, O. J. Baltzer—1116(L)
M-series of W, J. H. Munier, J. A. Bearden, C. H. Shaw—537
Of Zn-Ni alloys, J. A. Bearden, W. W. Beeman—396
X-rays, spectra and spectroscopy, wave-length measurements (see also **X-rays, emission**)
Lattice constants and density, F. Foote, E. R. Jette—81
X-rays, tubes, apparatus
Cauchois focusing spectrograph, F. R. Hirsh, Jr.—78

Zeeman effect
In Kr, J. B. Green, D. W. Bowman, E. H. Hurlburt-1094
In Kr I and X I, J. B. Green, D. W. Bowman, E. H. Hurlburt—381(L)
In Ru I, G. R. Harrison, J. R. McNally, Jr.—703